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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,204	08/16/2000	Andrew C. Singer	1201.63069	3214
7590 05/16/2005				
STEVEN P. FALLON, ESQ. GREER, BURNS & CRAIN, LTD. 300 S. WACKER DRIVE SUITE 2500 CHICAGO, IL 60606				
		EXAMINER CORRIELUS, JEAN B		
		ART UNIT 2637 PAPER NUMBER		

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/640,204

Applicant(s)

SINGER ET AL.

Examiner

Jean B Corielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5,6 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 5, 6, 12, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### **Examiner's comment**

1. The Finality of the last office action is withdrawn in view the following comments.
2. The disclosure is objected to because of the following informalities: page 7, line 11, shouldn't "and" be inserted between "]" and "("?. Appropriate correction is required.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Claim 12, recites that the equalizer produces: (1) an MMSE linear estimate and (2) corresponding output distribution. However, the equalizer is not seen to produce to type of signals. Therefore, an equalizer producing (1) an MMSE linear estimate and (2) corresponding output distribution, as recited in claim 12, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the

remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. claims 5, 6, 12-14 are objected to because of the following informalities. Claim 12, line 5, after symbol, " $\hat{b}[n]$ " should be replaced by " $b[n]$ " so as to be consistent with the specification; line 8, what does it mean by "distributed about the symbol values"?

Claim 13 recites the "output distribution (estimate)  $\hat{b}[n]$  can't be a function of  $\pi_{IN}^E[n]$  as  $\pi_{IN}^E[n]$  is excluded from the calculation of  $\hat{b}[n]$ . However, the specification page 6, lines 3-14 teaches that the equalizer is configured to receive two input signals, a reliability value  $\pi_{IN}^E[n]$  at an input and a received sequence  $b[n]$  at a second input, and that the equalizer uses both such inputs to generate  $\hat{b}[n]$ . See also the drawing figure where  $\pi_{IN}^E[n]$  and  $x[n]$  are provided as inputs to element 22. Therefore it would not make sense to exclude  $\pi_{IN}^E[n]$  from the calculation of  $\hat{b}[n]$  since  $\pi_{IN}^E[n]$  is an integral input of the equalizer and that the equalizer relies on such function to determine its output value  $\hat{b}[n]$ . otherwise, why would be the purpose of providing such an input to the equalizer

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if such input would be excluded from the calculation of  $b[n]$ ? the same comment applies to claim 5, lines 16-17.

In addition, claim 13, line 4, after symbol, " $b[n]$ " should be replaced by " $b[n]$ "; line 5, "estimate" should be replaced by "output distribution" so as to be consistent with antecedent in claim 12; please define " $\pi_{IN}^E[n]$ "; line 6, what does it mean by "**expectations are taken** over a distribution of symbols...."?

Claim 14, line 2, "following steps for computing the" should be deleted as claim 14 is not a method claim and "is computed" should be inserted" before given ; line 2, what does it mean by "given the observations"? step a, "Create" should be "create" and what does it mean by "the expectations..."?; line 5, shouldn't "means" be "mean"; step b, "Initialize" should be "initialize"; step c, "Loop" should be "loop"; step d, "Estimate" should be "estimate"; step e, "Determine" should be "determine".

Claim 6 is likewise objected because of its dependency to claim 5.

5. This application is in condition for allowance except for the formal matters noted above..

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.


6. claims 5, 6 and 12-14 would be allowable if amended to overcome the objection sets forth above.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday to Thursday from 8:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jean B Corrielus  
Primary Examiner  
Art Unit 2637

5/12/05